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# AN ECONOMIC REPORT TO THE GOVERNOR OF THE STATE OF TENNESSEE

## On the State's Economic Outlook

*Prepared by*

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*Published By*

**The Tennessee State Planning Office**
**Nashville, Tennessee**

**November 1983**

**Tennessee State Planning Office; November 1983;**
**Publication Authorization Number 2263;**
**800 copies. This public document was promulgated at a cost of $2.75 per copy.**

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The preparation of this report was financed in part through Economic Development Administration Grant 04–25–01355–04, Appalachian Regional Commission Grant TN–7783–83–Y45–302–0801, the Tennessee Department of Economic and Community Development, Tennessee Department of Employment Security, Tennessee Department of Finance and Administration, the Tennessee Department of Revenue, and the Tennessee State Planning Office.

# FOREWORD

This year's Economic Report to the Governor of the State of Tennessee is the ninth in an annual series. In response to requests by State Government officials for assistance in achieving greater interdepartmental consistency in planning and budgeting efforts which are sensitive to the overall economic environment, this volume is different from previous editions in two major respects.

First, the Report appears earlier in the budget-building process--in November rather than January. Second, the first two of the ten years of annual state economic forecasts appearing in previous Reports will be replaced by eight quarterly forecasts. Thus, the Report contains short-term or business cycle-sensitive forecasts as well as longer-term or trend forecasts.

Economic forecasts provided are designated as the official state government forecast for internal programming and fiscal 1984-85 budget planning purposes.

The quarterly state forecast through the third quarter of 1985 and annual forecast through 1992 represent the collective judgement of the staff of the Center for Business and Economic Research, College of Business Administration, at The University of Tennessee, Knoxville, in conjunction with the Quarterly and Annual Tennessee Econometric Model. The national forecast was prepared by the Wharton Econometric Forecasting Associates (WEFA) in Philadelphia, Pennsylvania. The quarterly U.S. forecast was released in September 1983, and the annual U.S. forecast is current as of October 1983.

The Tennessee forecasts are current as of October (Quarterly) and November (Annual). An array of assumptions, particularly at the national level, condition the analysis. These assumptions are contained in Chapter 2, following the Executive Summary in Chapter 1. Chapter 3 presents a more detailed evaluation of the quarterly and annual aggregate forecast for each major sector of the Tennessee economy, and Chapter 4 gives the outlook for various industries.

The forecast data presented here are of a summary nature. Considerably more detailed information is available on both the quarterly and annual forecast and can be obtained from the Center for Business and Economic Research. Further detail for state government agency personnel is available through the Tennessee State Planning Office.

The primary purposes of these annual volumes--published, disseminated, and partially financed by the Tennessee State Planning Office--is to provide wide public dissemination of the most current possible economic analysis to planners and decision makers in the public and private sectors.

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TABLE OF CONTENTS


| Chapter | | Page |
|---|---|---|
| | Foreword | v |
| 1 | Executive Summary | 1 |
| | The National Economy--Short Run | 1 |
| | The Tennessee Economy--Short Run | 2 |
| | The Long-Run Forecast | 3 |
| 2 | U.S. Economic Assumptions | 7 |
| | Short-Run Forecast | 7 |
| | Long-Run Forecast | 14 |
| 3 | The Tennessee Outlook | 17 |
| | Introduction | 17 |
| | Short-Run Forecast | 25 |
| | Long-Run Forecast | 32 |
| 4 | Outlook for Various Industries | 35 |
| | Short-Run Forecast | 35 |
| | Long-Run Forecast | 46 |
| | Agricultural Sector | 48 |

LIST OF TABLES


| Table | | Page |
|---|---|---|
| | Chapter 2 | |
| 1 | Selected National Economic Forecast Variables, 1983.2-1985.2 | 8 |
| | Chapter 3 | |
| 1 | Quarterly Forecast, Tennessee and United States -- Selected Indicators, 1983.1-1985.3 | 26 |
| 2 | Annual Forecast, Tennessee and United States -- Selected Indicators, 1983-1992 | 29 |
| | Chapter 4 | |
| 1 | Average Annual Percentage Growth Rates in Output, Jobs and Wages and Salaries for Tennessee and Various Sectors within the State, 1983-1985 | 36 |

# LIST OF FIGURES


| Figure | | Page |
|---|---|---|
| | **Chapter 1** | |
| 1 | Percent Change in Tennessee Nonagricultural Jobs, 1983-1992 . | 5 |
| | **Chapter 2** | |
| 1 | U.S. Short-Term and Long-Term Interest Rates, 1980.1-1983.3 . | 11 |
| 2 | United States Exchange Rate Index, 1976-1983 . . . . . | 13 |
| | **Chapter 3** | |
| 1 | Seasonally Adjusted Unemployment Rates, Tennessee and U.S., Quarterly, 1972.1-1983.2 . . . . . | 20 |
| 2 | Federal Civilian Government Jobs Indexes, Tennessee and U.S., 1972.1-1983.2 . . . . . | 22 |
| 3 | State and Local Government Jobs Indexes, Tennessee and U.S., 1972.1-1983.2 . . . . . | 23 |
| 4 | Trade Jobs Indexes, Tennessee and U.S., 1972.1-1983.2 . . . . | 24 |
| | **Chapter 4** | |
| 1 | Average Annual Percentage Growth Rates in Output, Jobs and Wages and Salaries for Various Sectors Compared with State-Wide Average Growth Rates, 1983-1985 . . . . . | 38 |
| 2 | Percentage Distribution of Nonagricultural Jobs, Tennessee and U.S., 1981 . . . . . | 42 |
| 3 | Percentage Distribution of Nonagricultural Jobs, Tennessee and U.S., 1985 . . . . . | 43 |
| 4 | Average Annual Percentage Growth Rates in Output, Jobs and Wages and Salaries for Various Sectors Compared with State-Wide Average Growth Rates, 1986-1992 . . . . . | 45 |
| 5 | Percentage Distribution of Nonagricultural Jobs, Tennessee and U.S., 1992 . . . . . | 47 |

# CHAPTER 1

## EXECUTIVE SUMMARY

The Tennessee economy is emerging from the most prolonged recession in the post-World War II time period. Nationally, the recovery began in the fourth quarter of 1982, which was reflected by a seasonally adjusted at annual rate growth of 9.2 percent in constant dollar gross national product (GNP) during the second quarter of 1983. Early signs suggest that Tennessee was slow in responding to this recovery. The unemployment rate in Tennessee was dipping throughout the first half of 1983, but this was attributable to declines in the labor force rather than growth in employment. June 1983 appears to have been the turning point when job growth began to accelerate in Tennessee.

### The National Economy-Short Run

The national economic expansion is expected to be anemic compared with previous rebounds, particularly when the duration of the recent economic stagnation is considered. Real GNP in the fourth quarter of 1983 is expected to be 6.4 percent higher than in the fourth quarter of 1982, real GNP is forecast to be 5.4 percent higher in 1984 than in 1983, and 3.1 percent higher in 1985 than 1984. The expansion will be consumer led throughout its duration, and the failure of other components of aggregate demand to support this rebound will keep it moderate.

High real interest rates, for the most part the result of tight monetary policy, are one important reason for the slow rebound.

U.S. monetary policy is expected to remain tight in an effort to control inflation, despite some possible short-run costs in terms of higher unemployment and slower output growth, that is, a slower rebound. A shift to a policy which is more stimulative in the short run may be recommended by some policy makers, but is not anticipated to prevail.

High interest rates will moderate, though not eliminate, the cyclical expansion of interest-sensitive industries. Thus, housing and automobile production will grow at lower paces than might have been anticipated. Business fixed investment will grow slowly, a phenomenon that will affect productivity growth into the future. The clash between large federal deficits and business investment plans will become particularly real by 1985 and will be a substantial reason for the lack of business investment.

The strong U.S. dollar will continue to reduce export demand and support imports in the short run, causing the international sector to be a net drag on the economy. Similarly, efforts to reduce the federal deficit and tax increases at the state/local level will cause the government sector to have a contractionary economic effect.

## The Tennessee Economy-Short Run

Though Tennessee swung into the expansion about a quarter later than the U.S., the state's cyclical sensitivity will lead to a relatively strong rebound. The rapid growth in employed people since June and the concomitant decline in unemployment rates is evidence of the response in Tennessee. Real output will average only 2.1 percent higher in 1983 than 1982 because the year's first half was

very weak. Output will grow 7.1 percent in 1984 and increase 3.4 percent in 1985. In both years output growth rates in Tennessee will exceed those for the U.S., which are 5.1 and 3.4 percent respectively. The cyclically sensitive manufacturing and construction sectors will show the greatest growth over these years. Other more stable growth sectors, like services which are following an international trend, will continue to expand at strong rates compared with the state's long-term growth pattern. Nominal income is forecast to grow 10.5 percent in 1984 and also during fiscal year 1985.

The unemployment rate is expected to dip slowly over the next several years and is not expected to fall below 9 percent until the end of 1984. Significant increases in the number of proprietors appear to have allowed the unemployment rate to dip particularly rapidly over the past several months, but the drop will not continue at recent trends. This is a typical pattern as unemployment rates fall slowly as an expansion begins, because business firms utilize existing employees more intensively before adding new ones. It is important to remember that changes in the demographic structure of the labor force have increased the low inflation unemployment rate to slightly above 6 percent so the historically high unemployment rates are less burdensome than they appear.

## The Long-Run Forecast

The national economic expansion is expected to wind down by the end of 1985, since consumers will be unable to sustain a prolonged expansion by themselves. Nonetheless, constant dollar GNP is forecast to average 2.9 percent growth annually over the next

decade, a rate somewhat slower than the 1970's. Productivity growth will increase compared with the earlier decade because of a more mature and better trained labor force providing a greater impetus than before. Output growth rates will fall, however, as increases in the number of employed people decline substantially.

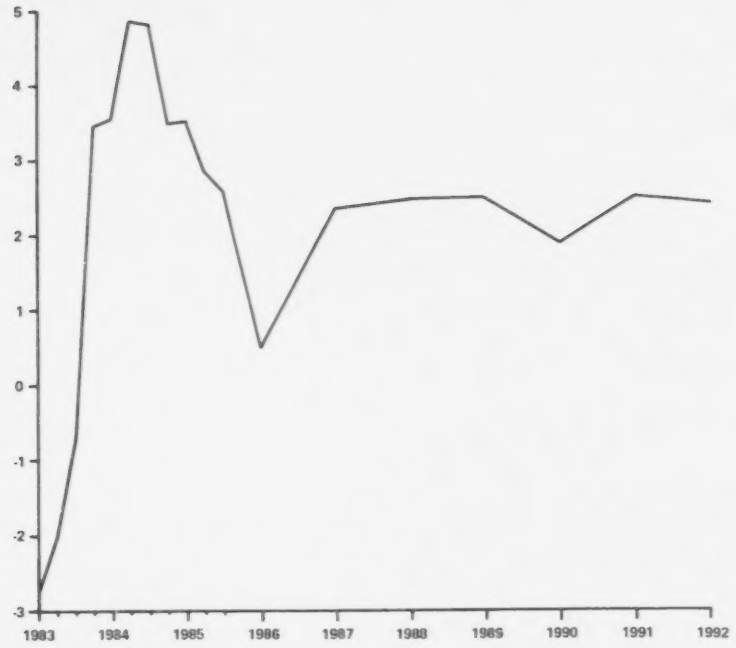
Tennessee output is forecast to average 3.6 percent annual growth between 1983 and 1992. This rate is somewhat higher than the nation's, partly as a reflection of a share in the trend of industrial migration to the Sunbelt. Low costs, particularly for labor, and an available labor force are positive reasons for the more rapid growth rate. Also, measuring growth from the low point of 1983 will tend to exaggerate Tennessee performance relative to the U.S. Rapid growth industries over the entire decade are expected to be manufacturing, trade, and construction, basically because the economy is coming out of prolonged recession. Manufacturing is forecast to absorb a smaller share of nonagricultural jobs in 1992 than in 1979. Government and transportation, communications, and public utilities will tend to grow more slowly than average.

Forecasts for the growth rate in nonagricultural jobs derived from the Quarterly Tennessee Econometric Model and Annual Tennessee Econometric Model are illustrated in Figure 1, on page 5. Rapid growth in jobs is forecast over the next several years, with the peak growth rate occurring during the second quarter of 1984. Noticeable slowdowns in job growth are expected to occur in 1986 and 1990.

Inflation rates are forecast to accelerate slowly between 1983 and 1985. Economic expansion will create the rising rates as tightness will develop in some markets and workers will seek higher wage

**FIGURE 1**

**PERCENT CHANGE IN TENNESSEE NONAGRICULTURAL JOBS**
**1983-1992**




SOURCE: Quarterly Tennessee Econometric Model, 1983.1–1985.3, October 1983 Solution; Annual Tennessee Econometric Model, 1986-1992, November 1983 Solution.

concessions. Such wage rate inflation increases will be partly tempered by productivity growth. Interest rates are also expected to increase over this same horizon. This breaks the historical precedent for interest rates to fall in an election year, but reflects our belief that the Federal Reserve System will maintain a tight monetary policy in order to hold down inflation. The real risk to inflation rates is that the Fed will adopt a loose monetary policy in response to political pressures designed to hold down interest rates. If this happens, the inflationary increases will be significant next year and the progress made in eliminating double-digit inflation may be lost. The assumption made here, however, is that the tight monetary policy will hold and, therefore, both interest rates and inflation rates are expected to moderate after 1985.

# CHAPTER 2

## U. S. ECONOMIC ASSUMPTIONS

Tennessee is a state with unique economic characteristics. For example, there is a high concentration in manufacturing activity, while incomes and wages in the state are relatively low. In the public sector the fiscal structure emphasizes taxation of consumption. Though these differences mean that the Tennessee economy is not a mirror image of the U.S., the state remains closely interlinked to the national economy. Thus, every forecast of Tennessee must begin with a national scenario, and this national scenario constitutes the most important assumptions on which the forecast is based. This chapter is a brief review of the national setting that forms the background within which the current Tennessee forecast is made.

### Short-Run View

The national economic assumptions used in the Tennessee forecast are drawn from the September 1983 quarterly and October 1983 annual forecasts made by Wharton Econometric Forecasting Associates (WEFA). This U.S. assumptions chapter is based substantially on the WEFA forecast and perspectives. A select group of WEFA forecast variables are found in Table 1.

The national scenario used in this forecast begins with the assumption that the federal government will continue to follow policies that will limit inflation at the possible expense of somewhat higher unemployment during the short run. There are, of course, alternative policies which could be undertaken that would focus more

TABLE 1

SELECTED NATIONAL ECONOMIC FORECAST VARIABLES



| | 1983 II | 1983 III | 1983 IV | 1984 I | 1984 II | 1984 III | 1984 IV | 1985 I | 1985 II |
|---|---|---|---|---|---|---|---|---|---|
| Real Gross National Product[1] | 1523.4 | 1552.1 | 1576.1 | 1596.5 | 1611.9 | 1626.0 | 1639.8 | 1651.9 | 1664.6 |
| (% Growth Versus Yr. Ago) | 2.3% | 4.5% | 6.4% | 7.1% | 5.8% | 4.8% | 4.0% | 3.5% | 3.3% |
| Civilian Unemployment Rate | 10.1% | 9.4% | 9.1% | 9.0% | 8.8% | 8.6% | 8.4% | 8.3% | 8.1% |
| Federal Deficit[2] | -163.7 | -200.4 | -198.4 | -182.3 | -173.5 | -167.0 | -166.3 | -169.1 | -171.8 |
| Personal Consumption Expenditures[3] | 1009.9 | 1023.5 | 1036.5 | 1045.9 | 1053.6 | 1061.6 | 1069.1 | 1076.9 | 1083.1 |
| GNP Deflator (1972 = 100) | 214.7 | 217.1 | 219.8 | 222.7 | 225.8 | 228.9 | 232.6 | 236.0 | 239.4 |
| (% Growth Versus Yr. Ago) | 4.1% | 4.3% | 4.7% | 4.6% | 5.2% | 5.5% | 5.8% | 6.0% | 6.0% |
| Federal Funds Rate | 8.80% | 9.29% | 8.98% | 9.31% | 9.62% | 10.05% | 10.36% | 11.08% | 11.90% |
| Bank Prime Rate | 10.50% | 10.67% | 10.06% | 11.01% | 11.61% | 12.10% | 12.55% | 12.84% | 13.12% |

1. In billion of dollars, using 1972 as the base year.

2. On a national income accounting basis expressed in billions of dollars.

3. Billions of dollars, using 1972 as the base year.

SOURCE: Wharton Econometric Forecasting Associates, Inc., September 1983.

on reducing unemployment in the short run. The actual policies which result over the next several years will be derived from the political process, but we expect little change in the basic direction of recent federal policy.

The short-run forecast (through mid-1985) is bright. Gross national product (GNP) growth is expected to be positive for 1983, 1984, and 1985, and to average just under 4.0 percent. The national unemployment rate is expected to decrease to 8.1 percent over the next two years, as employment growth averages about 2.3 percent annually.

The current cyclical upturn is reflected most in expectations for the cyclically sensitive durable goods manufacturing and construction sectors, both of which are forecast to have above-average growth in 1984 and 1985. Service sector growth is also forecast to remain above average.

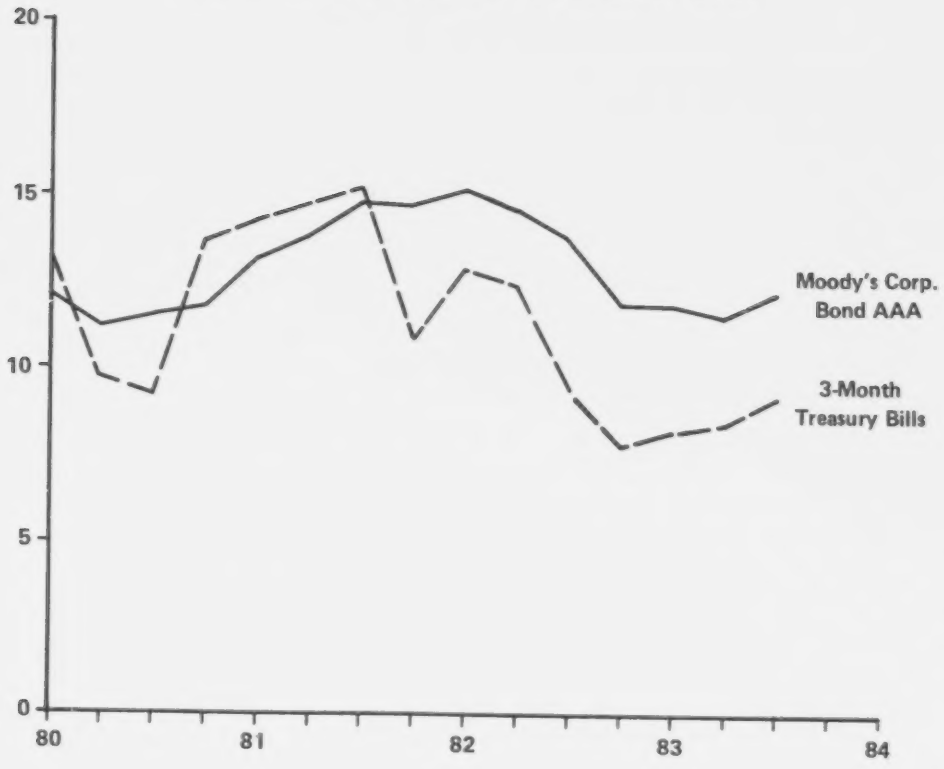
GNP grew at a seasonally adjusted annual rate of 9.2 percent during the second quarter of 1983 and 7.8 percent during the third. These rapid growth rates are not expected to continue over the remainder of the short-term forecast. From the second quarter of 1983 through the second quarter of 1985, GNP is forecast to grow a total of 9.3 percent, less than the first two years following the 1974-75 recession. In fact, GNP growth rates, although positive, are forecast to decline systematically over the next two years. Given the depth and duration of the just-passed recession, this is a surprisingly weak cyclical turnaround. Over the three-plus years from the beginning of 1980 through mid-1983, U.S. GNP grew only 1.8 percent and employment declined 1.6 percent.

High real interest rates and lagging exports, as a result of the strong dollar, are the reasons for the relatively anemic expansion. Nominal or market interest rates have two components, an inflation premium and the real interest rate. The real component is the important factor for influencing economic behavior. Real interest rates are currently high in response to the Federal Reserve's tight money policies which are designed to prevent inflation from accelerating as the economy grows (see Figure 1 for recent interest rate behavior). Another reason for high real rates is lenders' concern that inflation will be re-ignited and their unwillingness to allow themselves to be substantially exposed to this risk. The expectation is that real interest rates will remain high over the short-term horizon and the inflation premium will rise after the fourth quarter of 1983 as inflation rates creep up 1 to 1.5 percent. Thus, nominal interest rates are expected to increase in 1984. Since history suggests that interest rates tend to fall immediately prior to a presidential election, this assumption is a break from precedent. Interest rates are expected to rise substantially beginning in early 1985 as high federal deficits clash with business desires to increase investment.

High interest rates will moderate, though not eliminate, the cyclical expansion of interest-sensitive industries. Both residential housing and automobile production will proceed at healthy paces compared with the early 1980's, but activity in each will remain below the high levels achieved in the 1970's. Business-fixed investment (the additions to the capital stock) will grow very slowly compared with the years after the 1974-75 recession. Again, the clash

FIGURE 1

U.S. SHORT-TERM AND LONG-TERM INTEREST RATES




SOURCE: Wharton Econometric Forecasting Associates, Inc., historical data.

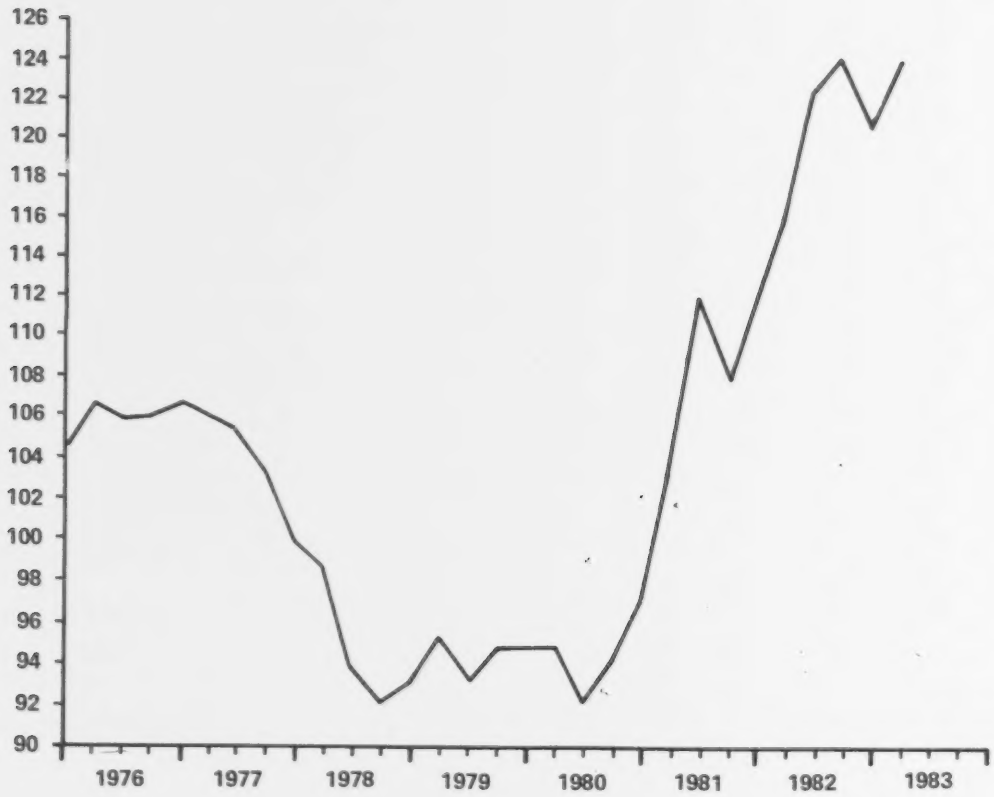
with federal deficits and the resulting interest rates are responsible for the slow growth. Weak investment will have impacts through the decade, as the small additions to the capital stock will be reflected in slower productivity and output growth in coming years.

The strong U.S. dollar is also partly the result of the high real interest rates generated by U.S. monetary policy. High interest rates attract foreign money capital to the U.S., and the resulting high demand for dollars increases the relative value of the dollar. Uncertainty about economic conditions and relatively weak economic performance in Europe are other reasons for the strong dollar. Exports of U.S. and Tennessee goods are discouraged and imports of foreign-made goods are encouraged by the strong dollar, so the international sector is a net drag on the U.S. economy. Figure 2 illustrates the upturn in the value of the dollar.

Large but declining federal deficits will occur over the next several years. Deficits are expected to remain as high as $170 billion through mid-1985. Judgements on whether federal policy is more or less expansionary are based on the direction of change in the deficit rather than its level. Therefore, the federal government's influence will be less expansionary (contractionary) over the foreseeable future. State and local governments as a group are also likely to have a contractionary effect, as tax increases will likely exceed expenditure growth for the next several years.

Despite the fact that federal policy is expected to slowly reduce the deficits, their absolute size will become an increasingly great problem. By 1985 federal borrowing will be competitive with business desires for investment, which will rise through the expan-

FIGURE 2
UNITED STATES EXCHANGE RATE INDEX, 1976-1983




SOURCE: "International Economic Conditions," Federal Reserve Bank of St. Louis (August 1983), p. 2, and direct correspondence.

sion. In the face of restrictive monetary policy, this "crowding out" of business investment by federal deficits is a reason for rising interest rates and slow business investment. The alternative which we believe to be unlikely would be for the Federal Reserve to expand the money supply to accommodate the rising demand for loanable funds. Such an action by the Fed would re-ignite inflation.

The result of the discussion above about the various economic sectors is that the cyclical expansion must be supported mostly by consumers, as little strength can be expected from any other sector. Government and the international sector will be contractionary and business investment will be only slightly expansionary. Higher incomes from the federal tax cuts and pent-up demand for housing and automobiles can help consumers sustain the expansion. Consumers alone, however, are not sufficient to sustain a strong expansion, thus leading to our view that the expansion will be relatively weak.

Long-Run Forecast

A cyclical downturn can be expected by late 1985 or early 1986. The extent of such a downturn is hard to forecast so far in advance, as evidenced by the WEFA forecast of a slowdown, rather than an actual decline in economic activity at that time. Another cyclical downturn is expected around 1990.

The GNP growth rate in constant dollar terms for the 1970's was 3.11 percent. The forecast is for only 2.47 percent during the 1980's. The slight growth can be explained partly by the duration and depth of the stagnation since 1980 and the expected anemic expansion. The effect of the 1980-83 time period can be seen by shift-

ing the time period slightly. The forecast growth rate in GNP for 1983-1993 is 2.89 percent versus 2.04 percent for 1973-1983.

Demographic trends are also an explanatory factor in the slow economic growth for the 1980's. The GNP growth rate is approximately the sum of the growth rate in productivity and the growth rate in employment. Productivity growth is forecast to increase from 0.7 percent annually in the 1970's to 1.06 percent annually in the 1980's. A better educated and more mature labor force is the primary reason. The major reason for the slowdown in long-term economic growth rates, then, is the dramatic reduction in employment growth from 2.36 percent annually in the 1970's to 1.39 percent in the 1980's. The labor force participation rate (percent of working age population in the labor force) is forecast to continue growing, but the labor force will grow at a much slower rate. The baby boom population and large numbers of women entered the labor force in the 1970's, but no similar groups are on the horizon to cause the labor force to grow so rapidly in the 1980's. Thus, growth in the number of people employed must slow during the 1980's, since there will not be a labor force sufficient to allow sustained growth at rates of the recent past.

Employment growth will outstrip labor force growth, so the unemployment rate is expected to decline over the decade except during the cyclical slowdowns in 1986 and 1990. Nonetheless, the unemployment rate will remain historically high throughout the decade and is forecast to be 6.4 percent in 1993. Shifts in the labor force characteristics lead economists to believe that 6 to 6.5 percent is approximately the "full-employment" unemployment rate; thus, drops below this level should be neither anticipated nor encouraged, as

lower unemployment rates would undoubtedly be linked with accelerating inflation.

Federal deficits are expected to decline over the decade (except during cyclical slowdowns), but not to be eliminated even by 1993. Two important assumptions here are rescindment of income tax indexation and retention of the gas tax beyond 1989. Deficits will be much higher if these assumptions or comparable tax increases fail to materialize. Large expenditure cuts in defense and entitlements will be necessary to erase the deficit completely, even with tax increases. Other factors, for instance streamlined management, could also help reduce federal deficits.

Interest rates are forecast to peak during 1985 and to fall thereafter. Inflation rates are forecast to slow slightly after 1985; therefore, the inflation component of interest rates will lessen. The real interest rate component of the nominal interest rate can also be expected to decline, though slowly, as lower federal deficits signal a sounder fiscal policy and less erratic monetary policy is anticipated.

# CHAPTER 3

## THE TENNESSEE OUTLOOK

### Introduction

Economic indicators since June 1983 are consistently positive for the first time since 1979. Average weekly hours of manufacturing workers, often considered an indicator of future economic performance, has risen steadily to 40.5 from last year's low of 38.6. In addition, personal income in Tennessee has recently registered healthy economic gains, even after accounting for the enervating effects of inflation on buying power. Both manufacturing and total nonagricultural jobs have recently shown positive growth. Manufacturing jobs in Tennessee in the third quarter of 1983 registered a seasonally adjusted gain at annual rates of over 9 percent from the second quarter.[1] Since December of 1982, the seasonally-adjusted number of employed people has grown by nearly 100,000 people. Finally, the unemployment rate in Tennessee has recently been on the decline. The third quarter seasonally adjusted unemployment rate in Tennessee was just over 10.5 percent, which is down from last year's fourth quarter high of 12.7 percent.

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1. Data reported on a monthly or quarterly basis in this report have been seasonally adjusted. This is an important distinction because normal seasonal variation in economic variables happens during every year, and this seasonal variation is neither a positive nor a negative economic signal. For example, unemployment rates consistently fall between August and September as students return to school and leave the labor force and teachers return to jobs and become employed. The data reported by the Department of Employment Security and the Department of Revenue are not seasonally adjusted, so comparisons must be made with caution.

Though the unemployment rate declines began in January, the true message of the decline requires a decomposition of the unemployment rate into its component parts: the labor force and unemployed workers. The number of employed people in Tennessee was actually lower for the first six months of this year than during October 1982 when the unemployment rate peaked. This means that the unemployment rate declines experienced during that period were somewhat specious. Rather than unemployment rate declines coming from new job growth, they came from workers leaving the labor force because they departed from Tennessee or were not optimistic about finding employment. In contrast, the unemployment rate declines experienced since June have been driven by new employment growth. Since that time, the seasonally adjusted labor force has grown by over 30,000 workers, while employment has risen by some 45,000 people. Clearly then, the post-June declines in the unemployment rate provide a positive economic signal.

Despite positive economic growth, the economic recovery in Tennessee has not achieved the robustness of previous economic expansions. Furthermore, unemployment remains at historically very high levels. Over 226,000 Tennesseans remained unemployed in the third quarter of 1983, and despite recent unemployment rate declines, the 1983 annual average unemployment rate of 11.1 percent will be almost 3 points higher than the worst unemployment rate experienced during the 1975 recession.

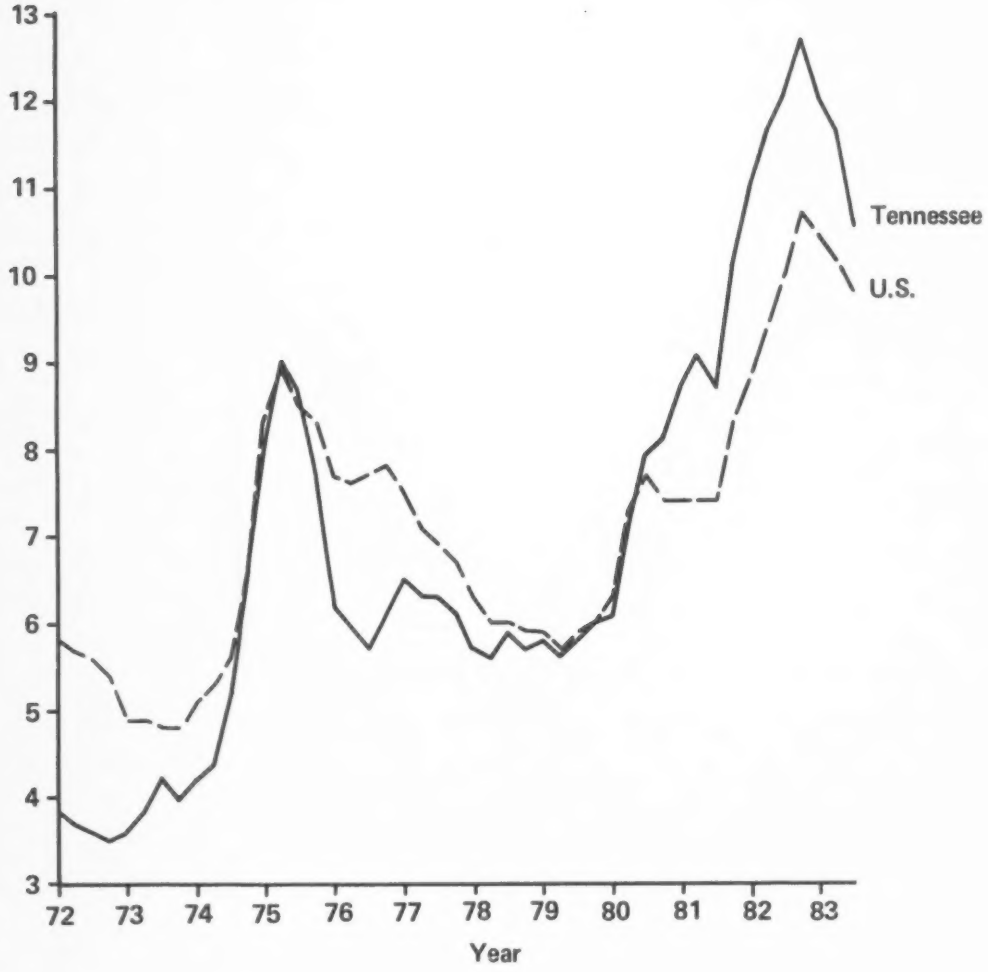
An additional persistent, if not perplexing, problem is the continued "unemployment gap" between the Tennessee and U.S. unemploy-

ment rates. This gap of differentially higher unemployment rates in Tennessee than in the nation began in 1980 and has continued until the present time. This phenomenon is depicted graphically in Figure 1, where we see that for the decade prior to 1980, Tennessee's unemployment rate was almost exclusively less than the nationwide average. However, by 1981 the annual average unemployment rate for Tennessee was 9.1 percent, while nationwide unemployment was 7.6 percent. In 1982, the average annual unemployment rates for Tennessee and the U.S. were 11.8 and 9.7 percent, respectively. The still young economic expansion has finally, narrowed this gap as the U.S. rate dropped from 10.8 in December of 1982 to 9.3 in September 1983, while Tennessee's rate went from 12.7 to 10.4.

Tennessee's economic performance in the 1980-1982 period was rather dismal. There are several reasons for this, the most obvious being that national economic activity over the same period was also quite sluggish, and that to a large degree, national economic activity dictates the economic environment in which Tennesseans operate. Unfortunately, even after adjusting for the depressing economic effects from the national level, Tennessee's economic activity appears to have been particularly slow. This residual sluggish performance of the Tennessee economy, unaccounted for directly by the national recession, appears to be the result of at least two factors. First, the structure of the Tennessee economy is such that it is particularly susceptible to demand-deficient, high interest rate recessions as encountered in the 1980-82 period. This sensitivity can, in part, be seen by noting that although the response to recessionary periods of nondurable manufacturing goods' employment in Tennessee and in the U.S. is similar, the structure of Tennessee's durable goods

FIGURE 1

QUARTERLY SEASONALLY ADJUSTED UNEMPLOYMENT RATES




SOURCE: Center for Business and Economic Research, November 1983.

manufacturing sector makes it much more interest rate-sensitive than the rest of the nation.[2] Second, the 1980-82 recession in Tennessee was marked by sharp reductions in state and federal government expenditures and employment, which at the federal level was largely the result of the end of the vast TVA construction era. In addition, state government cutbacks were necessitated by slow growing taxes and reductions in federal aid. These rapid declines in the state and federal governmental activity in Tennessee are illustrated in Figures 2 and 3. In Figure 2 we see that for an employment base of 1972 (=100), federal government employment in Tennessee grew very dramatically during the course of the 1970's. This employment growth occurred in both an absolute sense and relative to the U.S. average. However, we see that beginning in 1980, there were sharp declines in federal employment in Tennessee. In Figure 3 we see that state and local government employment growth in Tennessee parallels the pattern of federal employment declines. During the 1970's there was strong employment growth in the state and local government sector, both nationwide and in Tennessee. Since 1979, however, we see that nationwide employment of state and local government employees has fallen sharply, with Tennessee's employment declines being particularly large.

Finally, retail and wholesale trade in Tennessee appear to have been hit particularly hard during the 1979-1983 period. In Figure 4 we see that from 1972 to 1979 the trade sector in Tennessee enjoyed

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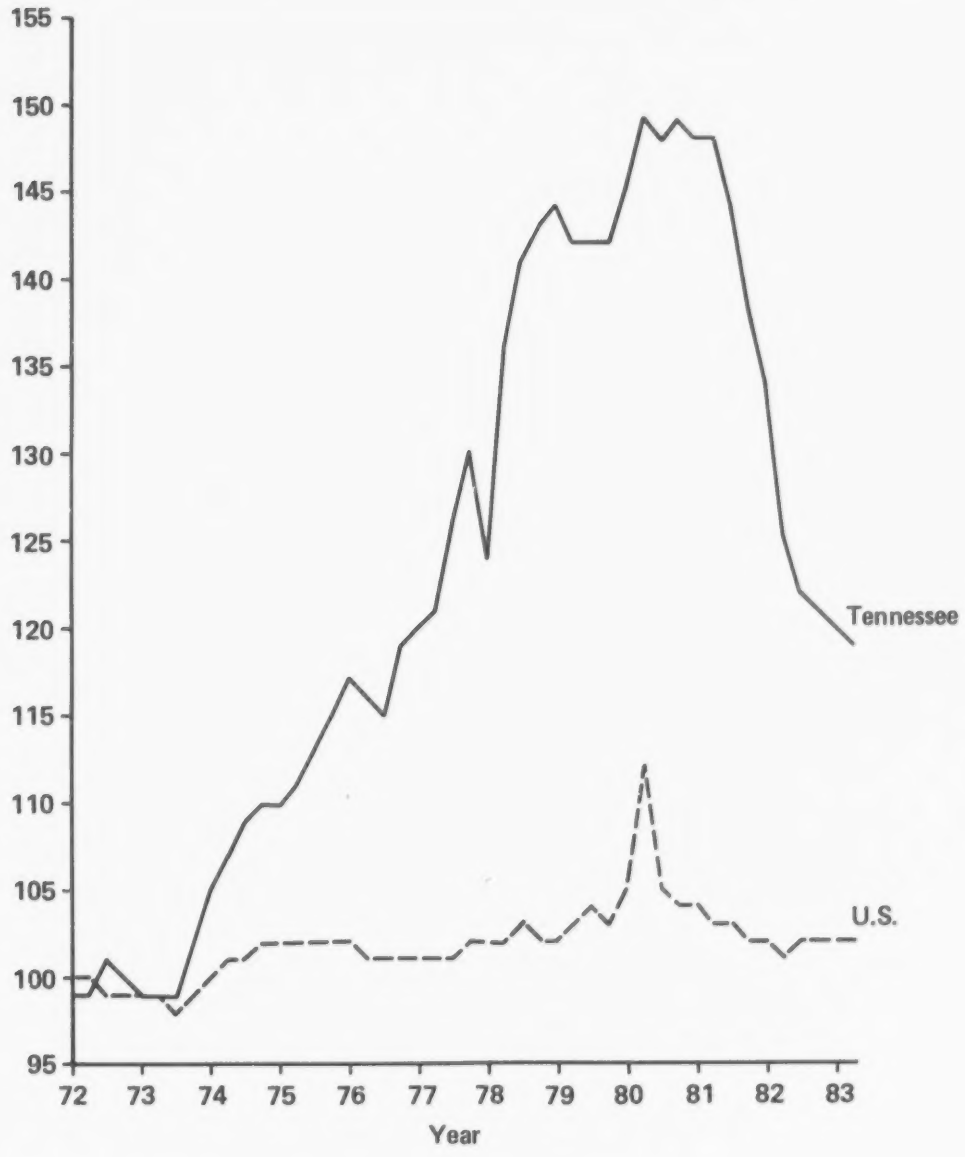
2. See John W. Mayo, "U.S. Business Cycle Impacts on the Tennessee Economy," Survey of Business, Center for Business and Economic Research, The University of Tennessee, Knoxville, Summer 1983.

FIGURE 2

FEDERAL CIVILIAN GOVERNMENT JOBS INDEXES




SOURCE: Center for Business and Economic Research, November 1983.

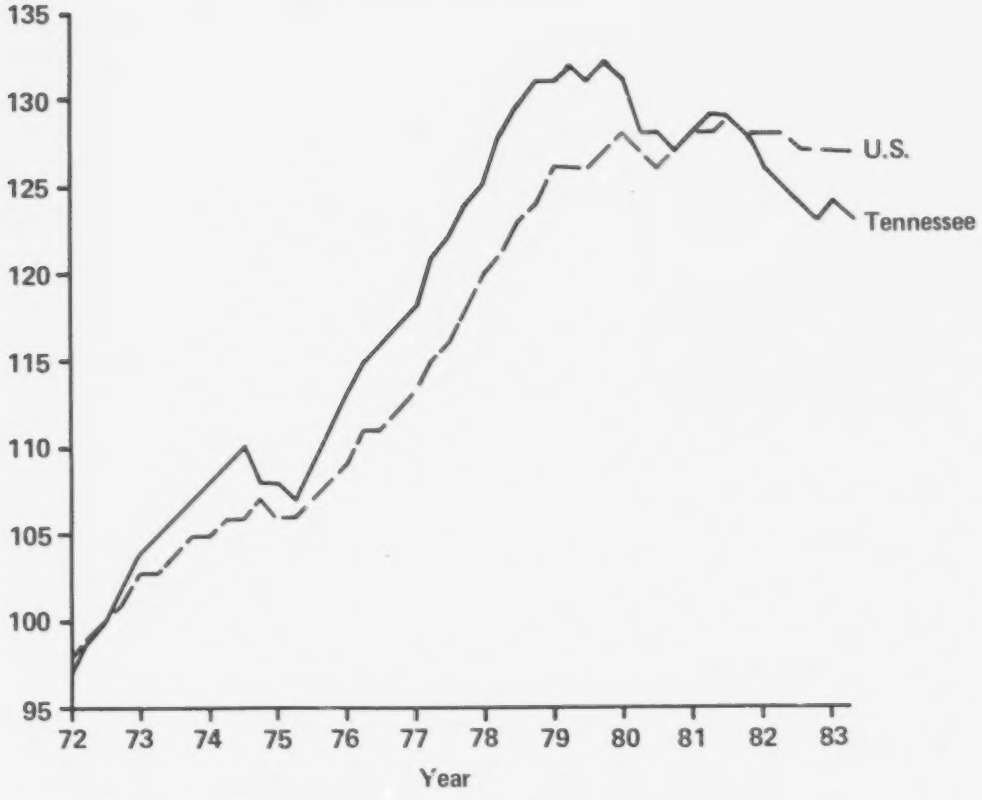
FIGURE 3

STATE AND LOCAL GOVERNMENT JOBS INDEXES

SOURCE: Center for Business and Economic Research, November 1983.

FIGURE 4

TRADE JOBS INDEXES




SOURCE: Center for Business and Economic Research, November 1983.

rapid employment gains. The last four years of sluggish economic performance have left the trade sector's employment nationwide struggling to remain stationary. In contrast, Tennessee's trade sector, and most dramatically wholesale trade, began a significant retreat in 1979 that is only now beginning to subside.

In summary, recent economic performance suggests that the recession is behind us and recovery has genuinely begun. It does not appear that the immediate future will see high output production levels, because the Tennessee recovery is starting from a very low base, and the recovery, until recently, has been slower and milder than elsewhere in the nation. Nevertheless, recent surges of employment and income portend more rapid growth to come.

## Short-Run Forecast

Table 1 lists selected indicators of quarterly economic activity for 1983 through the third quarter of 1985. Nonagricultural jobs and personal income are the best measures of economic activity available on a quarterly basis. Nonagricultural jobs declined during the first two quarters of 1983 by comparison with the same time period in 1982. Jobs began to grow in the third quarter, but the growth rate lagged behind the U.S. Starting with the fourth quarter, jobs are forecast to grow more rapidly in Tennessee than in the U.S., with the growth rate peaking in the second quarter of 1984. The number of nonagricultural jobs is forecast to grow throughout the quarterly forecast horizon. Nominal dollar personal income is forecast to grow 10.5 percent during 1984 and during fiscal year 1985 (July 1, 1984 through June 30, 1985).

TABLE 1

QUARTERLY TENNESSEE ECONOMETRIC MODEL
CONTROL SOLUTION: OCTOBER 1983

SELECTED ECONOMIC INDICATORS (SEASONALLY ADJUSTED)

| | LAGGED | FORECAST-DATA | | | | | | | | | | ANNUAL | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1983.1 | 1983.2 | 1983.3 | 1983.4 | 1984.1 | 1984.2 | 1984.3 | 1984.4 | 1985.1 | 1985.2 | 1985.3 | 1982 | 1983 | 1984 |
| US GNP (BIL 72 $)..... | 1490.1 | 1523.4 | 1552.1 | 1576.1 | 1596.5 | 1611.9 | 1626.0 | 1639.8 | 1651.9 | 1664.6 | 1675.0 | 1485.4 | 1535.4 | 1618.6 |
| % CHG PREV QTR SAAR..... | 2.56 | 9.24 | 7.76 | 6.33 | 5.27 | 3.92 | 3.54 | 3.45 | 2.97 | 3.12 | 2.52 | -1.88 | 3.37 | 5.41 |
| % CHG SAME QTR LAST YR..... | 0.29 | 2.29 | 4.47 | 6.44 | 7.14 | 5.81 | 4.76 | 4.04 | 3.47 | 3.27 | 3.01 | -1.88 | 3.37 | 5.41 |
| US PERS CON DEFL (1972=100)..... | 210.1 | 212.7 | 214.8 | 217.1 | 219.9 | 223.0 | 226.2 | 229.5 | 232.9 | 236.5 | 240.2 | 205.3 | 213.7 | 224.7 |
| % CHG PREV QTR SAAR..... | 2.12 | 5.04 | 4.05 | 4.25 | 5.30 | 5.76 | 5.95 | 5.94 | 5.98 | 6.34 | 6.45 | 5.76 | 4.08 | 5.14 |
| % CHG SAME QTR LAST YR..... | 4.16 | 4.47 | 3.83 | 3.86 | 4.66 | 4.84 | 5.32 | 5.74 | 5.91 | 6.06 | 6.18 | 5.76 | 4.08 | 5.14 |
| TN PERSONAL INCOME (MIL $)..... | 42445. | 43079. | 44065. | 45334. | 46611. | 47628. | 48853. | 50167. | 51419. | 52496. | 53770. | 41156. | 43731. | 48315. |
| % CHG PREV QTR SAAR..... | 4.03 | 6.11 | 9.47 | 12.02 | 11.76 | 9.01 | 10.69 | 11.20 | 10.36 | 8.65 | 10.07 | 5.61 | 6.26 | 10.48 |
| % CHG SAME QTR LAST YR..... | 5.80 | 5.25 | 6.07 | 7.87 | 9.82 | 10.56 | 10.87 | 10.66 | 10.31 | 10.22 | 10.07 | 5.61 | 6.26 | 10.48 |
| TN PERSONAL INCOME (MIL 72 $)... | 20202. | 20253. | 20512. | 20884. | 21197. | 21358. | 21593. | 21856. | 22079. | 22197. | 22384. | 20046. | 20463. | 21501. |
| % CHG PREV QTR SAAR..... | 1.87 | 1.02 | 5.21 | 7.45 | 6.33 | 3.07 | 4.47 | 4.96 | 4.13 | 2.17 | 3.40 | -0.14 | 2.08 | 5.07 |
| % CHG SAME QTR LAST YR..... | 1.57 | 0.74 | 2.15 | 3.85 | 4.93 | 5.46 | 5.27 | 4.65 | 4.16 | 3.93 | 3.66 | -0.14 | 2.08 | 5.07 |
| US PERSONAL INCOME (BIL 72 $)... | 1265.0 | 1276.8 | 1298.7 | 1319.1 | 1330.3 | 1339.7 | 1348.6 | 1360.9 | 1372.6 | 1380.7 | 1387.7 | 1256.0 | 1289.9 | 1344.9 |
| % CHG PREV QTR SAAR..... | 1.80 | 3.79 | 7.05 | 6.42 | 3.44 | 2.88 | 2.67 | 3.69 | 3.50 | 2.37 | -2.06 | 0.15 | 2.70 | 4.26 |
| % CHG SAME QTR LAST YR..... | 0.92 | 1.42 | 3.69 | 4.74 | 5.16 | 4.93 | 3.84 | 3.17 | 3.18 | 3.05 | 2.90 | 0.15 | 2.70 | 4.26 |
| TN NONAGRIC JOBS (THOUS)..... | 1667.6 | 1663.7 | 1689.3 | 1721.5 | 1728.9 | 1744.9 | 1771.1 | 1781.7 | 1789.8 | 1794.7 | 1816.8 | 1688.5 | 1685.5 | 1756.7 |
| % CHG PREV QTR SAAR..... | 0.92 | -0.95 | 6.32 | 7.84 | 1.72 | 3.77 | 6.14 | 2.42 | 1.81 | 1.10 | 5.03 | -3.91 | -0.18 | 4.22 |
| % CHG SAME QTR LAST YR..... | -2.79 | -1.90 | 0.63 | 3.47 | 3.67 | 4.88 | 4.84 | 3.50 | 3.52 | 2.85 | 2.58 | -3.91 | -0.18 | 4.22 |
| US NONAGRIC JOBS (MIL)..... | 88.8 | 89.4 | 90.6 | 91.3 | 91.9 | 92.5 | 93.1 | 93.8 | 94.3 | 94.8 | 95.2 | 89.6 | 90.0 | 92.8 |
| % CHG PREV QTR SAAR..... | 0.09 | 2.88 | 5.14 | 3.04 | 3.05 | 2.53 | 2.58 | 2.89 | 2.19 | 2.16 | 1.85 | -1.71 | 0.48 | 3.13 |
| % CHG SAME QTR LAST YR..... | -1.69 | -0.54 | 1.41 | 2.77 | 3.52 | 3.44 | 2.80 | 2.76 | 2.55 | 2.45 | 2.27 | -1.71 | 0.48 | 3.13 |
| TN UNEMPLOYMENT RATE (%)..... | 12.0 | 11.7 | 10.6 | 10.0 | 9.9 | 9.9 | 9.3 | 9.3 | 8.8 | 9.2 | 9.0 | 11.9 | 11.1 | 9.6 |
| US UNEMPLOYMENT RATE (%)..... | 10.4 | 10.1 | 9.4 | 9.1 | 9.0 | 8.8 | 8.6 | 8.4 | 8.3 | 8.1 | 7.9 | 9.7 | 9.7 | 8.7 |
| TN MFG JOBS (THOUS)..... | 458.8 | 461.2 | 471.4 | 483.5 | 485.0 | 491.5 | 502.4 | 507.8 | 504.8 | 506.3 | 512.8 | 467.9 | 468.7 | 496.7 |
| % CHG PREV QTR SAAR..... | 1.23 | 2.11 | 9.23 | 10.65 | 1.25 | 5.47 | 9.14 | 4.38 | -2.36 | 1.19 | 5.21 | -7.99 | 0.17 | 5.97 |
| % CHG SAME QTR LAST YR..... | -4.89 | -1.56 | 1.69 | 5.72 | 5.73 | 6.59 | 6.57 | 5.02 | 4.07 | 3.00 | 2.06 | -7.99 | 0.17 | 5.97 |
| US MFG JOBS (MIL)..... | 18.3 | 18.5 | 18.9 | 19.1 | 19.2 | 19.4 | 19.6 | 19.7 | 19.8 | 19.9 | 19.9 | 18.9 | 18.7 | 19.5 |
| % CHG PREV QTR SAAR..... | -0.13 | 5.20 | 8.48 | 4.40 | 3.55 | 3.65 | 3.30 | 3.00 | 1.45 | 1.75 | 0.85 | -6.53 | -0.99 | 4.36 |
| % CHG SAME QTR LAST YR..... | -6.06 | -2.98 | 1.02 | 4.44 | 5.39 | 5.00 | 3.72 | 3.37 | 2.84 | 2.37 | 1.76 | -6.53 | -0.99 | 4.36 |
| TN MFG AVE WEEKLY HOURS..... | 40.1 | 40.5 | 40.5 | 39.9 | 40.1 | 40.1 | 40.4 | 40.2 | 40.6 | 41.0 | 41.5 | 38.6 | 40.2 | 40.2 |
| % CHG PREV QTR SAAR..... | 11.42 | 3.88 | 0.35 | -6.36 | 2.84 | -0.28 | 2.68 | -1.32 | 3.68 | 3.56 | 5.14 | -3.29 | 4.24 | -0.06 |
| % CHG SAVE QTR LAST YR..... | 5.91 | 4.74 | 4.26 | 2.12 | 0.10 | -0.92 | -0.35 | 0.96 | 1.17 | 2.13 | 2.74 | -3.29 | 4.24 | -0.06 |
| US MFG AVE WEEKLY HOURS..... | 39.5 | 40.1 | 40.2 | 40.3 | 40.4 | 40.5 | 40.4 | 40.4 | 40.5 | 40.6 | 40.8 | 38.9 | 40.0 | 40.4 |
| % CHG PREV QTR SAAR..... | 4.95 | 6.24 | 1.64 | 0.78 | 1.03 | 0.47 | -0.36 | -0.78 | 1.19 | 1.38 | 1.38 | -2.17 | 2.79 | 0.98 |
| % CHG SAME QTR LAST YR..... | 2.14 | 2.54 | 3.12 | 3.38 | 2.40 | 0.98 | 0.48 | 0.09 | 0.13 | 0.35 | 0.79 | -2.17 | 2.79 | 0.98 |

SOURCE: TENNESSEE ECONOMETRIC MODEL, CENTER FOR BUSINESS AND ECONOMIC RESEARCH, UT-KNOXVILLE.

Growth in constant dollar personal income during the third quarter of 1983 was the highest since the third quarter of 1981. The growth rate is expected to accelerate through the second quarter of 1984, which will also be the quarter when Tennessee personal income will begin to grow faster than U.S. personal income. After accounting for the effects of inflation, personal income in Tennessee will grow 1.5 percent in 1983, 5 percent in 1984, and 2.5 percent in 1985. This growth pattern represents slower-than-the-national-average growth in 1983, but more rapid growth in 1984. Nominal per capita personal income for Tennesseans will grow from $9,349 in 1983 to $11,030 in 1985. The 1983 gains in personal income will come largely in the form of proprietors' income. This is because proprietors are typically the first to reap the pecuniary gains from a recovery. Furthermore, the most recent data show rapid employment growth relative to nonagricultural job growth and this tends to suggest rather healthy increases in the number of proprietorships during the 1983-84 period. By 1984 the distribution of personal income growth will be more widespread, with wages and salaries, property income and proprietors' income all registering healthy gains.

As a result of declining inflation and an overall weak labor bargaining position, nominal wages will grow more slowly in the 1983-85 period than in either the early 1980's (high inflation, low capacity utilization) or the late 1970's (high inflation, high capacity utilization). However, productivity growth during the 1983-85 upturn will result in higher wages and salaries after netting out the effects of inflation. Overall, Tennessee's average nominal wages will grow from $15,732 in 1983 to $17,821 in 1985. Real wages and salaries

across all sectors in Tennessee will grow 1.25 percent in 1983, 1.3 percent in 1984, and 0.2 percent in 1985. For a detailed description of wage and salary growth by sector, see Chapter 4.

Perhaps the broadest indicator of economic activity at the state level is Gross State Product (GSP), which is the value of all goods and services produced in the state in any given year. In Table 2, the Tennessee GSP, along with other selected indicators of economic activity, are provided for the the 1983-85 period. There we see that the 1983 growth of real (inflation-adjusted) GSP will be in the neighborhood of 2.1 percent, while Gross National Product will grow nearly 3.4 percent.

The 1983 Tennessee GSP growth rate of less than the nationwide average reflects the late-arriving and modest recovery in Tennessee to date. Factors that have contributed to the delay in Tennessee's economic recovery include both cyclical and secular factors. Cyclical factors include the previously mentioned sensitivity of Tennessee's manufacturing and trade sectors to high interest rate, demand-deficient periods. Secular factors that have slowed Tennessee's expansion in 1983 include a long-run, structural shift away from rapid growth in the government sector. However, by 1984 the recovery should be in full swing in Tennessee, with real GSP growth in excess of 7 percent, compared with 5.4 percent nationally. This rapid growth of GSP in 1984 is partially the result of the fact that Tennessee's economic activity was so depressed during the early 1980's that there is a strong potential for rebound. Furthermore, historical evidence suggests that periods of economic expansion, once they do arrive in Tennessee, appear to significantly outpace the nationwide average.

TABLE 2

ANNUAL TENNESSEE ECONOMETRIC MODEL
CONTROL SOLUTION: NOVEMBER 1983

TENNESSEE SELECTED INDICATORS

| | FORECAST-DATA | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
| TN GROSS STATE PRODUCT (MIL. DOL.)... | 56019. | 63056. | 68963. | 72635. | 80203. | 87160. | 94634. | 100280. | 108802. | 117148. |
| PERCENTAGE CHANGE..... | 6.94 | 12.56 | 9.37 | 5.32 | 10.42 | 8.67 | 8.57 | 5.97 | 8.50 | 7.67 |
| TN GROSS STATE PRODUCT (MIL 72 $).... | 26573.2 | 28445.8 | 29402.7 | 29544.2 | 31118.5 | 32321.3 | 33490.9 | 33999.3 | 35311.3 | 36473.0 |
| PERCENTAGE CHANGE..... | 2.06 | 7.05 | 3.36 | 0.48 | 5.33 | 3.87 | 3.62 | 1.52 | 3.86 | 3.29 |
| US GROSS NATIONAL PRODUCT (BIL 72 $). | 1535.4 | 1618.6 | 1668.1 | 1688.6 | 1771.6 | 1821.1 | 1871.0 | 1883.3 | 1954.5 | 1997.5 |
| PERCENTAGE CHANGE..... | 3.37 | 5.42 | 3.06 | 1.23 | 4.92 | 2.79 | 2.74 | 0.66 | 3.78 | 2.20 |
| TN PERSONAL INCOME (MIL. DOL.)..... | 43731. | 48315. | 52568. | 56181. | 61387. | 66797. | 72559. | 77998. | 83995. | 90443. |
| PERCENTAGE CHANGE..... | 5.58 | 10.48 | 8.80 | 6.87 | 9.27 | 8.81 | 8.63 | 7.50 | 7.69 | 7.68 |
| TN PERSONAL INCOME (MIL 72 $)..... | 20473.3 | 21502.0 | 22050.3 | 22544.7 | 23475.0 | 24449.8 | 25405.8 | 26279.7 | 27095.1 | 28087.8 |
| PERCENTAGE CHANGE..... | 1.48 | 5.02 | 2.55 | 2.24 | 4.13 | 4.15 | 3.91 | 3.44 | 3.10 | 3.66 |
| US PERSONAL INCOME (BIL 72 $)..... | 1290.3 | 1344.9 | 1384.2 | 1418.1 | 1481.5 | 1522.3 | 1564.1 | 1592.7 | 1635.8 | 1675.5 |
| PERCENTAGE CHANGE..... | 2.73 | 4.23 | 2.92 | 2.45 | 4.46 | 2.76 | 2.74 | 1.83 | 2.71 | 2.42 |
| TN EMPLOYED PERSONS (THOUS)..... | 1907.0 | 1969.0 | 2011.0 | 1997.7 | 2061.9 | 2100.3 | 2139.4 | 2170.1 | 2211.8 | 2252.2 |
| PERCENTAGE CHANGE..... | 1.49 | 3.25 | 2.13 | -0.66 | 3.21 | 1.86 | 1.87 | 1.43 | 1.92 | 1.83 |
| US EMPLOYED PERSONS (MIL)..... | 100.7 | 104.0 | 106.5 | 106.8 | 110.0 | 111.9 | 113.5 | 114.0 | 116.7 | 118.2 |
| PERCENTAGE CHANGE..... | 1.22 | 3.26 | 2.35 | 0.33 | 3.01 | 1.66 | 1.48 | 0.47 | 2.30 | 1.29 |
| TN UNEMPLOYMENT RATE..... | 11.1 | 9.6 | 9.0 | 9.9 | 8.1 | 7.5 | 7.1 | 7.2 | 6.4 | 6.1 |
| US UNEMPLOYMENT RATE..... | 9.7 | 8.7 | 8.0 | 8.7 | 7.4 | 7.1 | 7.0 | 7.6 | 6.7 | 6.6 |
| IMPLICIT DEFLATOR, GSP..... | 210.8 | 221.7 | 234.5 | 245.9 | 257.7 | 269.7 | 282.6 | 294.9 | 308.1 | 321.2 |
| PERCENTAGE CHANGE..... | 4.78 | 5.15 | 5.81 | 4.82 | 4.83 | 4.63 | 4.78 | 4.38 | 4.47 | 4.24 |
| IMPLICIT DEFLATOR, GNP..... | 216.0 | 227.5 | 241.2 | 252.7 | 265.9 | 278.9 | 293.0 | 306.0 | 320.8 | 335.3 |
| PERCENTAGE CHANGE..... | 4.41 | 5.32 | 6.02 | 4.77 | 5.22 | 4.89 | 5.06 | 4.44 | 4.84 | 4.52 |
| TN MFG OUTPUT / EMPLOYEE (THOUS 72 $) | 20.2 | 21.1 | 21.5 | 21.3 | 22.2 | 22.6 | 23.0 | 22.7 | 23.4 | 23.8 |
| PERCENTAGE CHANGE..... | 2.66 | 4.29 | 1.95 | -0.79 | 4.17 | 1.62 | 1.68 | -1.09 | 3.16 | 1.54 |
| US MFG OUTPUT / EMPLOYEE (THOUS 72 $) | 18.8 | 19.7 | 20.1 | 20.4 | 21.0 | 21.6 | 22.3 | 22.6 | 23.3 | 24.0 |
| PERCENTAGE CHANGE..... | 5.29 | 4.77 | 2.17 | 1.45 | 2.91 | 3.05 | 3.05 | 1.41 | 3.07 | 3.20 |
| TN PER CAPITA INCOME ($)..... | 9349. | 10228. | 11030. | 11718. | 12725. | 13705. | 14728. | 15652. | 16707. | 17788. |
| PERCENTAGE CHANGE..... | 4.98 | 9.40 | 7.84 | 6.23 | 8.59 | 7.70 | 7.46 | 6.28 | 6.74 | 6.47 |
| TN POPULATION (THOUS.)..... | 4678. | 4722. | 4762. | 4795. | 4824. | 4874. | 4927. | 4983. | 5027. | 5084. |
| PERCENTAGE CHANGE..... | 0.58 | 0.94 | 0.84 | 0.69 | 0.62 | 1.03 | 1.08 | 1.15 | 0.89 | 1.13 |

SOURCE: TENNESSEE ECONOMETRIC MODEL, CENTER FOR BUSINESS AND ECONOMIC RESEARCH, UT-KNOXVILLE.

By 1985, real growth rates in both GNP and GSP should decline to the more moderate, but still healthy 3 percent range, with GSP still higher. Thus, for the short run, GSP will take off slowly in 1983, be quite robust in 1984, and will moderate somewhat in 1985. By the end of 1985 the expansion will likely end.

In addition to providing the real GSP forecast for Tennessee, Table 2 provides a summary of employment and unemployment patterns from now through 1985. During the 1983-85 period, employment in Tennessee will grow 5.5 percent from 1.9 million people to over 2 million employed workers. Tennessee's employment figures for 1983 will not look particularly strong, with only a 1.5 percent growth over the average 1982 employment level. However, it should be remembered that this annual figure represents the early-year, sluggish employment growth as well as the more recent strong employment gains. Furthermore, because of strong late quarter employment gains, the 1983 employment growth in Tennessee will outpace the national average. Employment in Tennessee during 1984 will grow 3.26 percent to 1.97 million workers and will surpass the previous employment record of 1.93 million in 1980. By 1985 employment gains will moderate both in Tennessee and nationwide. In Tennessee, employment will pass the two-million mark. However, as interest rate pressures rise during late 1984 and into 1985 (see Chapter 2), Tennessee's employment growth will be a somewhat restrained 2.1 percent.

The combined effect of employment growth in the 1982-85 period and only moderate labor force growth will lead to steady decreases in the Tennessee unemployment rate over this period. Tennessee's labor force will grow at an average compounded annual rate of 1.24

percent from 2.13 million people to 2.21 million people. This represents a slower growth rate in the labor force than that experienced in the 1970's, when both population and labor force participation rates were growing rapidly. The 1983 average unemployment rate in Tennessee will be 11.1 percent, which is down from the 1982 post-World War II high of 11.8. With strong employment gains during 1984 in almost every sector of the Tennessee economy, the unemployment rate is expected to fall to average 9.6, and will fall below 9 percent by the year's end. This will represent the first time since 1981 that the average annual unemployment rate has been below double digits. Continued output and employment gains in 1985 will bring the unemployment rate down to 9 percent. While these unemployment rate declines during the 1983-85 period are most welcome, it is apparent that the problem of historically high unemployment rates will not disappear in the short run. Even with the anticipated employment gains during the next two years, some 200,000 Tennesseans will remain unemployed during 1985. However, it should be reiterated that the low inflation, unemployment rate now appears to be in the neighborhood of 6 percent, and higher than in the 1970's.

Along with output and employment gains during 1983-85, productivity (output per manufacturing worker), will also rise. These productivity gains will occur at both the state and national levels, which is quite common during recovery and growth periods. In Tennessee, real output per manufacturing employee will grow from $20.2 thousand in 1983 to $21.5 thousand in 1985. These productivity gains will be somewhat higher than the more modest gains registered in the post-1975 recovery.

Long-Run Forecast

Tennessee's comparative advantages have traditionally included low-cost labor, relatively inexpensive energy, plentiful natural resources, and above-average productivity. To a large extent these economic factors will remain part of the characteristics of the Tennessee economy, so the long-run outlook for Tennessee is bright. Such an optimistic prognosis for the long-run health of the Tennessee economy can be seen in Table 2.

Real GSP will grow at a compounded average annual rate of nearly 3.6 percent over the 1986-1992 period. This is a healthy rate of growth in two respects. First, Tennessee's 3.6 percent growth exceeds the anticipated 2.8 percent growth rate of GNP over the same 1986-1992 time horizon. Second, real GSP growth during the 1986-1992 period will compare very favorably to almost any six-year period of the Tennessee economy since 1970. For instance, during the six-year period following the 1975 recession, GSP grew at 1.8 percent annually, one-half the expected rate during 1986-1992. The difference in these two is substantially the result of the last year being a recession for the earlier period and an expansion for the latter.

Employment gains in Tennessee in the long run will also compare favorably with nationwide averages. During the 1986-1992 period employment in Tennessee will grow at an annual rate of over 2 percent--to 2.25 million workers. In the long run the employment outlook at the national level is a very sound 1.7 percent annual growth rate from 1986 to 1992.

As employment and productivity in Tennessee expand in the long run, personal income growth should be very solid. For the 1986-1992 period, real personal income in Tennessee is expected to grow at an annual average of 3.7 percent, while the comparable national figure is 2.8 percent. Real Tennessee per capita personal income growth for the 1986-1992 period should be about 2.7 percent.

Average annual wage and salary, the largest component of personal income, will grow at an average annual rate of 6 percent from the 1986 average of $18,777 to $26,638 in 1992. After netting out the impact of inflation on these wages, real wages and salaries will still register positive growth at an average 1.6 percentage rate annually.

While the secular outlook for the Tennessee economy is, overall, quite favorable, there will nevertheless always be cyclical ups and downs in the future course of the Tennessee economy. As alluded to in Chapter 2, 1986 should be a year of very modest growth at the national level. This slowdown will be reflected in Tennessee's economic activity. Furthermore, as has been the case in past periods of nationwide slowdowns, Tennessee will suffer disproportionately. While real GNP growth in 1986 will be around 1.2 percent, output growth in Tennessee will be a meager 0.5 percent across all sectors. Manufacturing (durable goods) and construction are both likely to experience real output setbacks in 1986 in Tennessee.

Declining interest rates in the long run and greater fiscal responsibility by the federal government are important assumptions that indicate the 1986 slowdown will be relatively mild and short, both at the national and state levels. Subsequently, the 1987-89

period should see solid economic growth. Tennessee's real GSP is forecast to grow in excess of 3 percent. The Tennessee Econometric Model suggests that 1990 will be a slow year, which will then be followed by two years of 3 percent growth in real output.

The short- and long-run scenario together indicate a 3.6 percent growth in constant dollar Tennessee GSP versus 2.9 percent for GNP. The greater cyclical sensitivity in Tennessee is an important reason for this difference because we are measuring growth from the bottom of a recession. Relatively low production costs for firms in Tennessee and the location on the edge of the Sunbelt are positive reasons for this growth.

# CHAPTER 4

## THE OUTLOOK FOR VARIOUS INDUSTRIES

### Short-Run Forecast

As noted earlier, the period 1983-85 will see a relatively weak economic expansion nationally, due primarily to imports exceeding exports and high real interest rates. The consistently high level of interest rates will moderate business demand because of their disincentive effects on capital investment as well as because of the related problem of "crowding out" associated with continuing high national debt burdens. Consumers, however, will lead the recovery partly as the result of higher disposable incomes (permitted by Federal tax cuts) spent on, among other items, housing and automobiles. High interest rates will prevent demand for these interest-sensitive categories from reaching 1970's peaks. Nonetheless, this mixed character of the expansion will manifest itself in the situation of cyclically sensitive industries rebounding vigorously, while others will be growing more lethargically. Tennessee will grow more slowly than the nation in 1983. However, it will grow faster than the U.S. in 1984 and 1985.

Table 1 shows the mixed nature of the short-run outlook and the drastic turnaround by some industries. Several characteristics clearly reveal what will be occurring. First, the growth rates vary tremendously. Output will grow an average of 8.73 percent per year in durable goods manufacturing, while finance, insurance, and real estate (FIRE) will creep ahead at slightly more than one-third of that pace (3.12 percent). Employment exhibits even more heterogeneity,

TABLE 1

AVERAGE ANNUAL PERCENTAGE GROWTH RATES IN OUTPUT, JOBS AND WAGES AND SALARIES FOR TENNESSEE AND VARIOUS SECTORS WITHIN THE STATE[1] 1983-1985

| | Output | Jobs | Wages and Salaries |
|---|---|---|---|
| Tennessee[2] | 5.19 | 3.35* | 0.74 |
| Manufacturing | 7.35 | 4.11 | 1.07 |
| Durable Goods | 8.73 | 5.78 | -0.01 |
| Nondurable Goods | 6.32 | 2.82 | 1.90 |
| Construction | 5.78* | 8.89* | 0.86 |
| Mining | 7.59 | 8.01* | -0.13 |
| Trade | 4.83 | 3.13 | 0.09* |
| Services | 3.27 | 3.11 | 0.13 |
| Finance, Insurance, and Real Estate | 3.12* | 1.44* | 1.13 |
| Transportation, Communications, and Public Utilities | 6.63 | 3.03* | 2.44 |
| State and Local Government | 3.28 | 2.56 | 0.42 |
| Agricultural | 3.36 | -1.18 | -0.61 |

1. Output is gross state product in 1972 dollars; and wages and salaries represent average annual wage and salary in 1972 dollars.

2. Tennessee jobs represent total nonagricultural jobs.

*Asterisk indicates that a decline occurred during 1982-83.

juxtaposing 8.89 percent annual growth in construction, with an average 1.18 percent decline in agriculture. Finally, wages and salaries will jump up by an annual average of 2.44 percent in transportation, communications, and public utilities, but decline in three industries. The second point is that a number of industries exhibited a decline in output, jobs and/or wages and salaries from 1982 to 1983, but will grow during 1983 to 1985. Altogether there are seven such instances.

It seems clear that though the economy is turning up, the 1983-85 period will not be equally rosy for every sector, but some industries will be making noteworthy turnarounds.

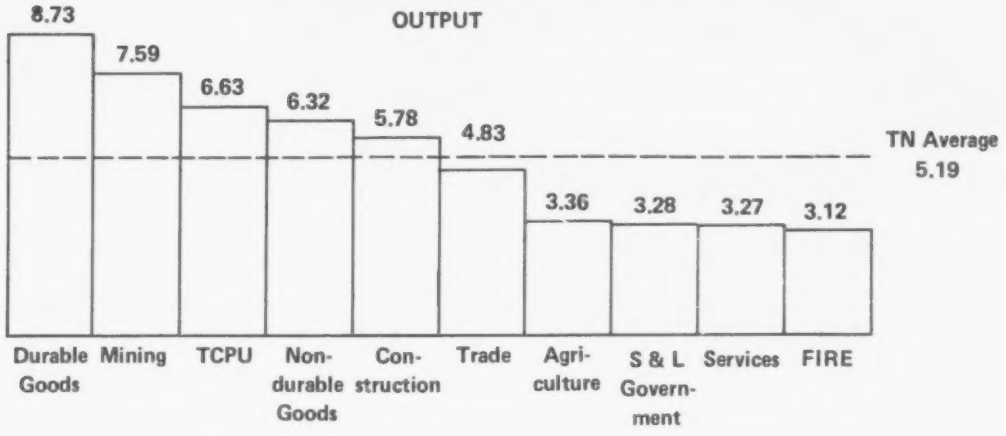
That the strongest recoveries will occur in the cyclically sensitive industries is visibly revealed in Figure 1, which presents in histogram form the average annual percentage growth rates seen in Table 1. This figure is organized so that two characteristics of the short run can be seen: the comparison of each industry with the state-wide average growth in output, jobs, and wages and salaries and the rank of each industry in growth rates. For example, the Tennessee average annual growth rate in output will be 5.19 percent during 1983-85. Durable goods manufacturing (led by lumber and wood products), mining, transportation, communications, and public utilities (TCPU), nondurable goods manufacturing (led by textiles), and construction will each grow faster than the state's average, while trade, agriculture, state and local government, services, and FIRE will grow slower. In addition, durable goods' output will grow fastest and FIRE's output will grow slowest.

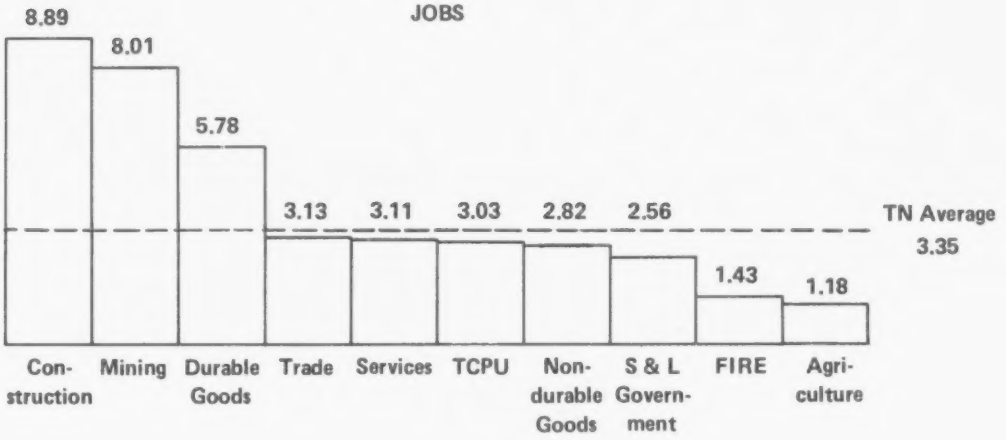
The cyclically sensitive industries are, of course, noteworthy because of their superior performances. Construction, which is notably cyclically sensitive, is the only sector which will display above-average growth rates in all three categories of output, employment, and wages and salaries. This performance is partially due to pent-up demand for housing and to the fact that construction's output and employment had fallen so far from the historically high levels of the 1970's. Durable goods manufacturing and nondurable goods manufacturing, two more cyclically sensitive industries, also will

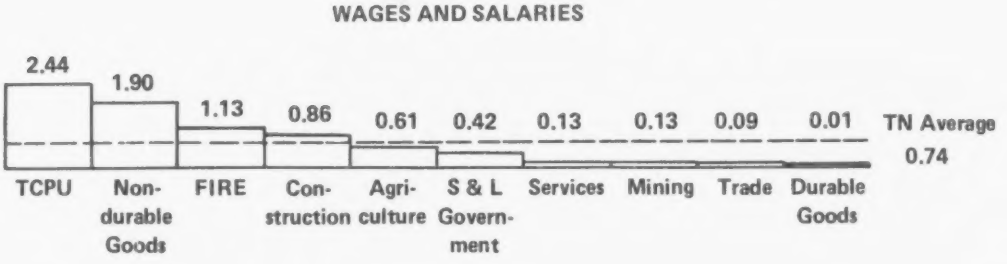
## FIGURE 1

### AVERAGE ANNUAL PERCENTAGE GROWTH RATES IN OUTPUT, JOBS AND WAGES AND SALARIES FOR VARIOUS SECTORS COMPARED WITH STATE-WIDE AVERAGE GROWTH RATES[1]

1983-1985




1. Output is gross state product in 1972 dollars; jobs is jobs by sector in thousands; and wages and salaries is average annual wage and salary in 1972 dollars.

SOURCE: Tennessee Econometric Model, November 1983 solution.

perform well, showing above-average growth rates in two of the three categories.

The only blot on the predicted strong performance of these three industries is the expected decline in wages after netting out inflation for durable goods industries. However, even this decline is consistent with the highly responsive character of this sector. We noted earlier that we expect a slowdown in roughly late 1985. During contractions (or expansions), hours of work are usually adjusted downward (or upward) before people are laid off (or hired). As hours of work decline, wages and salaries will also decline. Hence, the decline in wages and salaries forecast for 1985, which causes the decline over 1983-85 is simply an expected response to the cyclical downturn at this period's end. Once again, we see the cyclical sensitivity of this industry manifested. Also, competition from low-wage foreign industries will inhibit wage growth in this sector.

The three industries discussed above are noteworthy because of how they ride the wave of the expansion in response to their sensitivity to business cycles. There is a converse group which is notable for its relatively sluggish performance in the face of the short-run recovery: agriculture, state and local government, trade, and services. Each of these sectors shows below-average growth (or short-run declines) in all three of the categories. It should be noted, though, that the services sector has been, and will continue to be characterized by consistent and relatively rapid growth. This sector appears to perform relatively poorly during the expansionary short run because it suffers by comparison with the cyclically sensitive

industries which began this period at such low levels and which will rebound so vigorously. Similarly, the trade sector grows slowly only by comparison with other industries, but its growth rate substantially exceeds the long-term trend.

State and local government will perform relatively poorly. Neither output nor employment will return to historical high levels by 1985. The recent shift in federal priorities away from intergovernmental assistance and toward defense spending and tax relief will lead to slower growth rates in this sector. In addition, government growth will be inhibited by the consumption-based nature of Tennessee's tax revenues. Even with recovery beginning, the overall income inelasticity of the Tennessee tax structure will fail to provide sufficient revenues for rapid growth. An increase in the state sales tax rate would allow for somewhat stronger growth in this sector.

The period 1983-85 appears positive for bankers. Assets for commercial banks will climb at an average annual rate of 10.4 percent, to reach $37,225 million by 1985. Total deposits will grow faster than assets, attaining average growth of 10.7 percent per year. The best news, however, will be that total loans will surge upward at a rate of 12.8 percent per year, reaching $20,074 million. This dramatic and welcome growth in loans will be partly a response to previously delayed purchases of automobiles and consumer durables.

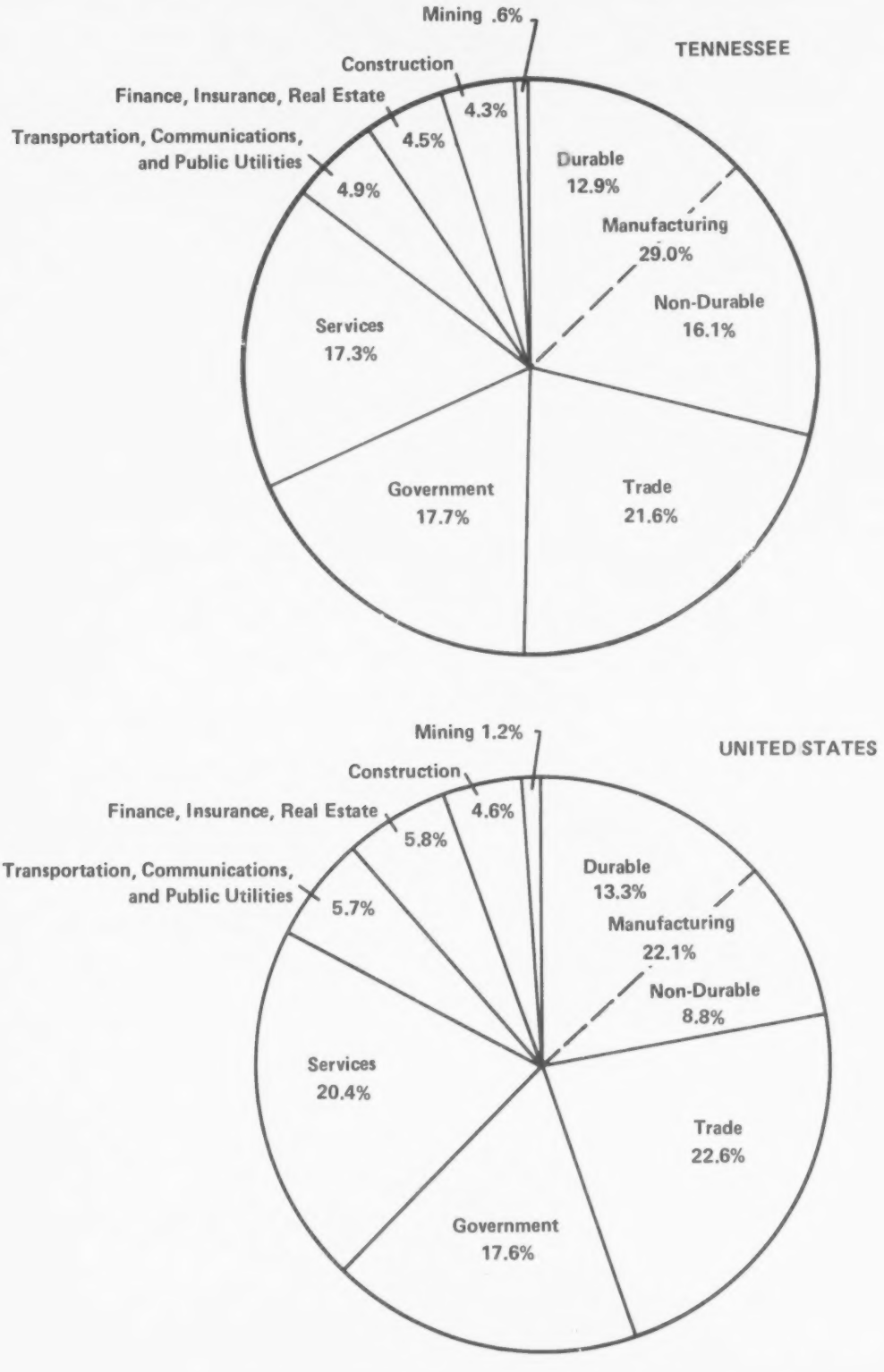
The energy sector will be characterized by slowly rising energy prices and consumption. Electricity prices will reach 5.22 cents per kilowatt hour in 1985, having grown at a slow 4 percent per year during 1983-85. Coal prices will almost match the growth in electricity prices, rising at an average annual rate of 4.1 percent.

Natural gas prices will show the largest, albeit still moderate, increases of roughly 6 percent per year in the short run. The combination of higher prices, the below-average recovery, and increasingly efficient energy use will inhibit the growth of energy consumption during the short run. Total electricity consumption will grow by only 1.6 percent per year, while natural gas usage will decline by an average of 2.7 percent per year. Gasoline consumption will grow from 2,317 million gallons in 1983 to 2,401 million gallons in 1985, a slow climb at 1.8 percent per year. Slow growth in gasoline consumption and likewise in gasoline tax revenues will be one reason why total tax revenues will fail to respond completely to the economic recovery.

Tennessee's high concentration in manufacturing and related low concentration in services has left the state vulnerable to national economic contractions, leading to, among other results, recent historically high unemployment rates. Contained within our forecast is information which can tell us whether Tennessee's vulnerability will persist. Figures 2 and 3 depict the composition of both Tennessee's and the nation's economies through the percentage distribution of nonagricultural jobs in 1981 and 1985, respectively. The recent national trend has been a shift away from manufacturing and toward services. The two figures show that both Tennessee and the United States are following this trend, although Tennessee will still have a higher proportion of manufacturing and a lower proportion of services than the nation in 1985. Tennessee's shift is encouraging, but it is not erasing the relative concentration in the state.

FIGURE 2

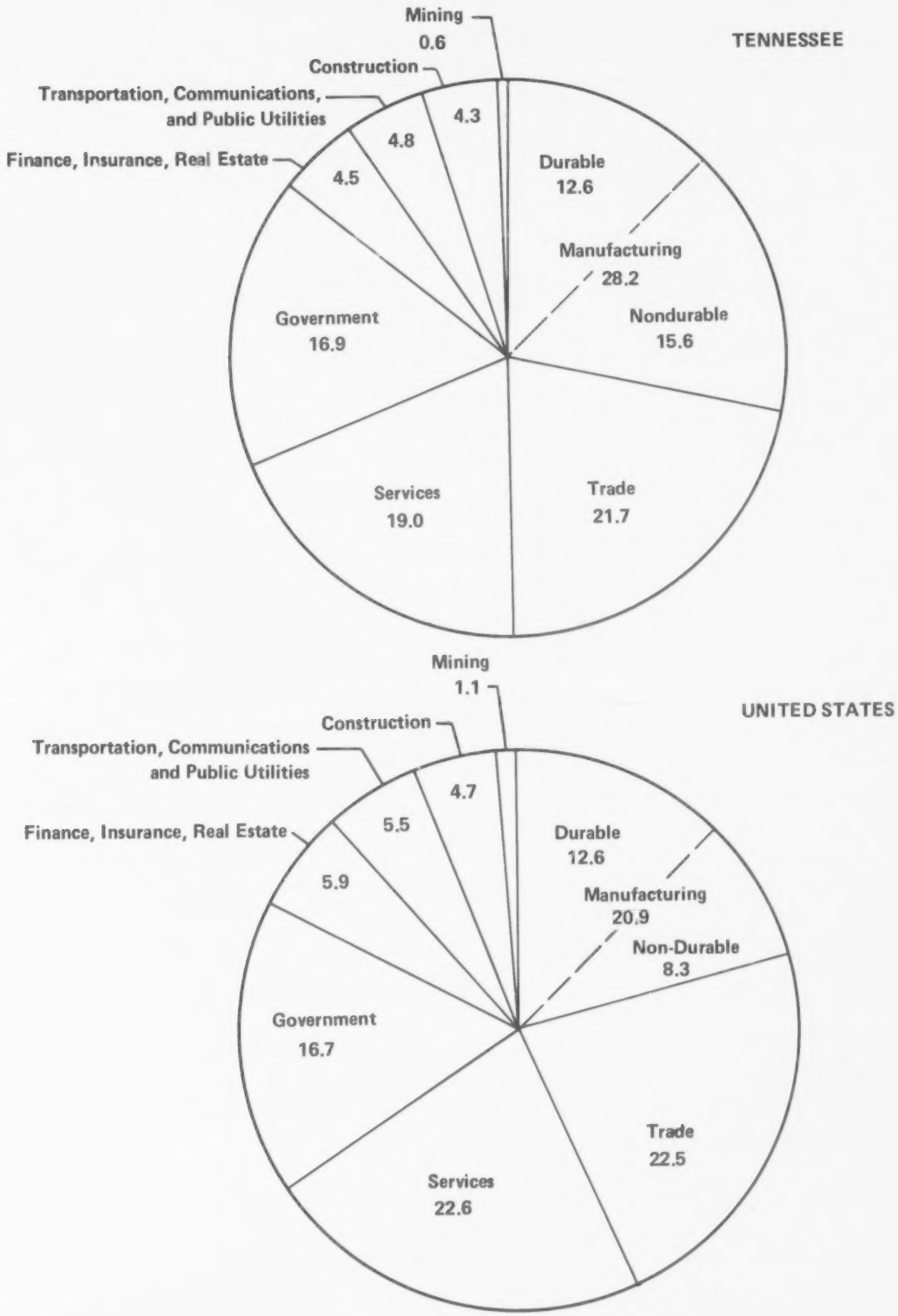
PERCENTAGE DISTRIBUTION OF NONAGRICULTURAL JOBS, 1981




SOURCE: Tennessee Econometric Model, historical data November 1983 solution.

FIGURE 3

PERCENTAGE DISTRIBUTION OF NONAGRICULTURAL JOBS, 1985




SOURCE: Tennessee Econometric Model, and Wharton long-term forecast, September 1983.

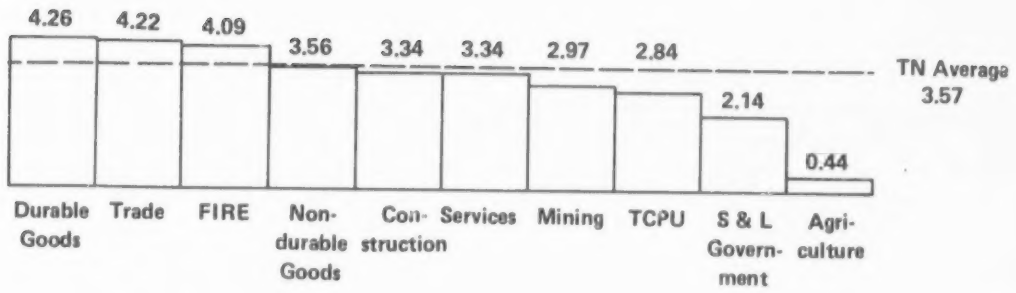
The reader might be confused by above-average growth in manufacturing jobs during 1983-85 resulting in manufacturing comprising a lower portion of total nonagricultural jobs in 1985. This apparent anomaly arises from comparing the number of jobs during the 1980-83 stagnation with the number at the end of an expansion. The contraction in the economy prior to 1983 drove down the number of jobs to such an extent that the very low starting level in 1983 combined with the national cyclical rebound to generate high growth rates in this industry. However, the relatively small number of jobs in 1983 prevented even rapid growth from pushing the number of jobs above the 1981 level.

The percentage changes between the proportions of manufacturing and services in 1981 and 1985, as illustrated in Figures 2 and 3 give the speed with which such transitions are occurring. Comparing Tennessee's percentage changes with the nation's gives the relative speed with which Tennessee is transforming its economy. If both the state and the nation are moving equally fast, then the percentage changes will be equal. If the U.S. is moving faster, then its percentage change will be higher, and vice versa. Analyzing the two figures shows that the U.S. and Tennessee are moving equally fast toward services. However, the U.S. is moving away from manufacturing nearly twice as fast as Tennessee. Consequently, we have a picture in which Tennessee is more concentrated in manufacturing than the U.S. and is reducing that concentration at only one-half the speed of the U.S. This suggests that Tennessee's economic vulnerability will persist throughout the short run.

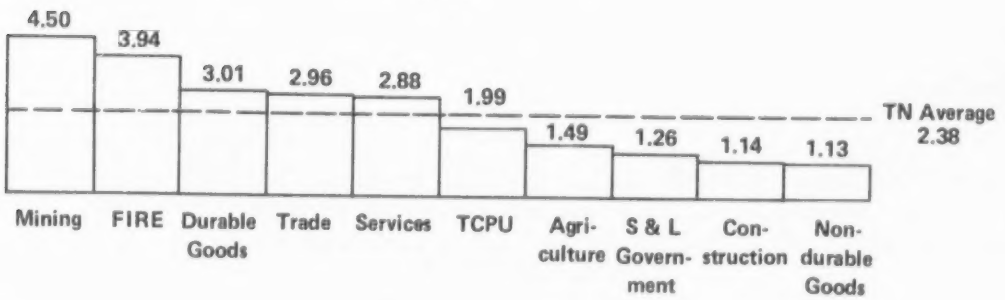
FIGURE 4

AVERAGE ANNUAL PERCENTAGE GROWTH RATES IN OUTPUT, JOBS AND WAGES AND SALARIES FOR VARIOUS SECTORS COMPARED WITH STATE-WIDE AVERAGE GROWTH RATES[1] 1986-1992

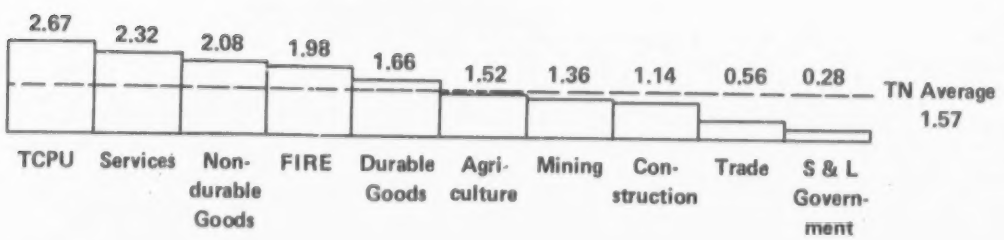
OUTPUT




JOBS




WAGES AND SALARIES




1. Output is gross state product in 1972 dollars; jobs is jobs by sector in thousands; and wages and salaries is average annual wage and salary in 1972 dollars.

SOURCE: Tennessee Econometric Model, November 1983 solution.

Long-Run Forecast

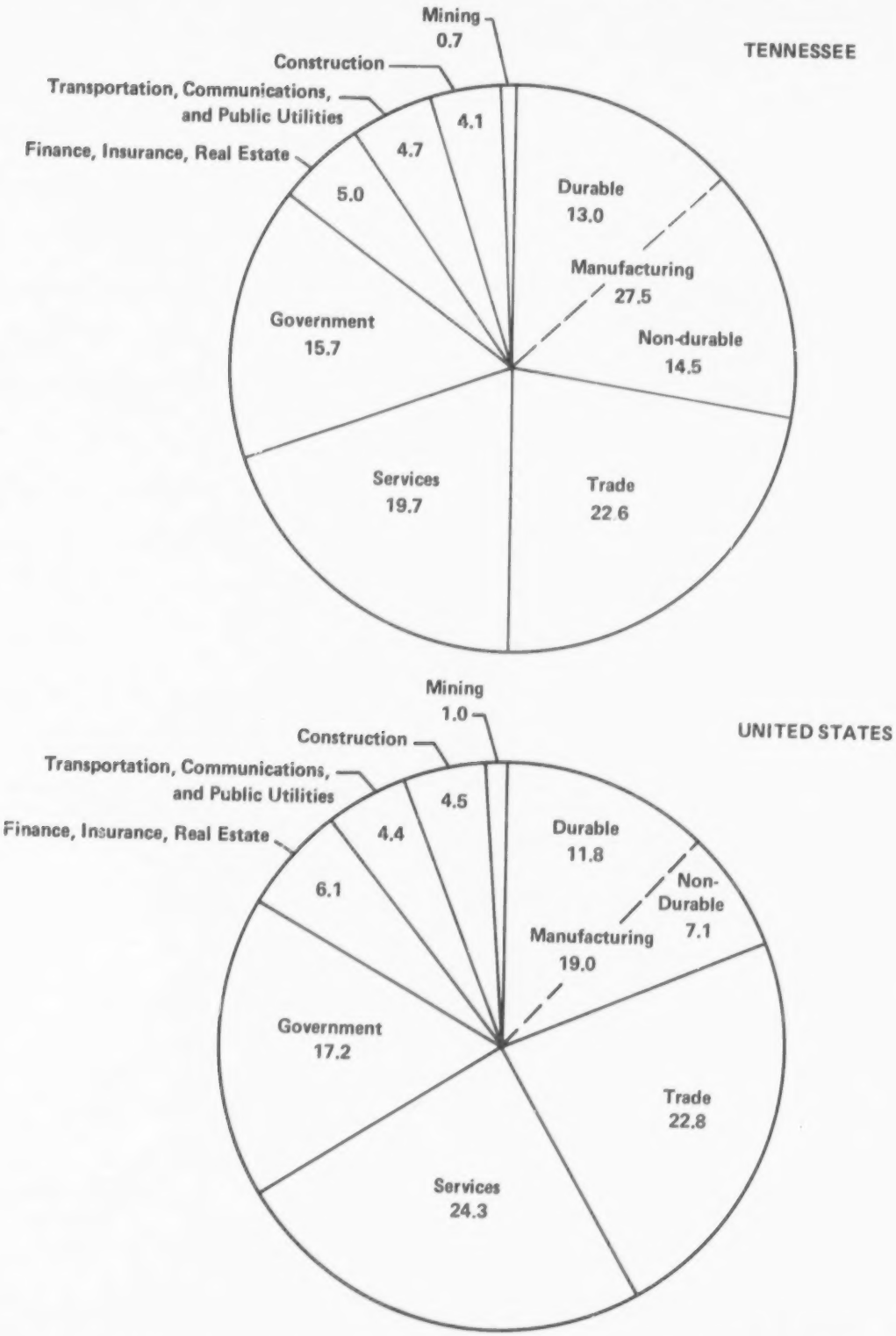
The long run spans a time of both upturns and slowdowns. Consequently, the average annual growth rates for this period show the net result of both growth surges and slowdowns. In general, the growth rates are lower than during the essentially expansionary short run. For instance, the average annual growth rate of output in Tennessee will be 3.6 percent in the long run, whereas, it will be nearly 5.2 percent in the short run. As seen in Figure 4, output in durable goods, trade, and FIRE will grow faster than in the rest of the state. These same three sectors will be joined by mining and services in exhibiting above-average growth in jobs. Durable goods wages and salaries mean this sector is growing faster than average in all three categories. Again, this performance by durable goods is because 1986, used as base year here, is forecast as a slowdown.

On the other extreme, we find that state and local government and agriculture will continue their sluggish short-run performance into the long run. Both sectors will grow at below-average rates in output, jobs, and wages and salaries.

As with the short run, Tennessee's economic structure in the long run is not expected to shift as rapidly as the nation's. Analysis of Figure 5 shows three points. First, whereas the nation and the state will be shifting toward services at nearly equal speeds in the short run, the long run will see the U.S. becoming increasingly more service oriented compared with Tennessee. Second, the paths which Tennessee and the U.S. will follow in the short run shift away from manufacturing will diverge even more in the long run, as the U.S. will move away from manufacturing much faster than will Tennessee.

FIGURE 5

PERCENTAGE DISTRIBUTION OF NONAGRICULTURAL JOBS, 1992




SOURCE: Tennessee Econometric Model, and Wharton long-term forecast, September 1983.

Finally, 13 percent of all nonagricultural jobs will be in durable goods manufacturing in 1992. This figure was 12.9 percent in 1981, a recession year, and 13.5 percent in the pre-recession year of 1979. Nondurable goods will decline more rapidly as their share of nonagricultural jobs falls from 16.0 percent in 1979 to 14.5 percent in 1992. In other words, the share of manufacturing will decline compared with 1979, but slowly, particularly for durable goods. These three facts add up to a relatively small change in Tennessee's vulnerability to economic downturns.

The short run and the long run forecast together indicate that above-average growth rates in jobs will occur in mining, construction, trade, services, and FIRE. Below average growth rates will occur for manufacturing, TCPU, and government. Strong manufacturing growth, compared with the 1983 lows, is forecast to occur in some sectors, including transportation equipment, fabricated metal, nonelectrical machinery, and rubber and plastics.

Agriculture Sector

There is good news and bad news regarding factors affecting the agriculture sector in 1984. The good news is the continued economic recovery projected for both the U.S. and Tennessee by the Tennessee Econometric Model, which is encouraging for domestic demands for food and fiber products.

On the other hand, the outlook regarding export markets is less encouraging, especially when compared with the record growth in farm exports during the 1970's. World supplies of crop products in 1983-1984 will be high because production levels reached in China, India,

Indonesia, Thailand, and Brazil will more than compensate for reduced outputs elsewhere. Overseas production of beef and veal, pork, and poultry will increase 0.2, 1.7, and 3.3 percent, respectively, during 1984. Continuing difficult economic conditions in overseas importing nations and high foreign exchange rates for American dollars also dampen overseas sales prospects. Finally, foreign debts incurred by less developed nations (LDCs) have impaired their capacity to finance food imports. Low prices for their commodity exports and high interest rates have required LDCs to reschedule debt payments in order to reduce credits available for food imports.

Among the favorable factors for farm exports is the agreement with the Soviet Union that minimum quantities of grain will increase 50 percent. Improvements are also possible in trade with mainland China. In addition, higher prices for oilseeds will increase the value of U.S. export sales more than 10 percent--to $10 billion, but cotton and tobacco exports will likely be the same or slightly less than last year. The value of American farm exports is expected to reach $39 billion in FY 1984, up from $34.8 billion in FY 1983.

The severe drought last summer also will impact on the agricultural situation in 1984. High temperatures and lack of rainfall in July and August sharply reduced yields on acreages that were already cut 25 percent in response to 1983 PIK agricultural programs. National production of feed grains, soybeans, and cotton are expected to be 44, 39 and 35 percent, respectively, below 1982 levels, bringing higher farm prices for these commodities that will persist into 1984. Resulting higher feed costs next year will put heavy pressure on net returns of livestock and poultry producers. Later in the

year, higher prices for livestock and poultry are expected as beef and pork supplies diminish and the economy continues to recover from the recent recession.

Nationwide, farm production expenses in 1982 were 2 to 3 percent less than in 1982. Input price increases ranged from 2 to 3 percent, while quantities purchased declined in response to reductions in acres planted. However, 1984 production expenses are expected to rise about 6 percent because of greater acreages planted and higher feed prices, interest rates, and prices of natural gas. Prices of other energy inputs, barring disturbances to Middle Eastern oil production and deliveries, should be stable, with some possibility for modest decreases.

The annual rate of increase in retail food prices has been decreasing. Preliminary forecasts are for 2.2, 4.4, and 1.1 percent increases in prices of all food, food away from home, and food at home, respectively, in 1983. The 1984 forecasts for the three categories range from 3 to 7 percent. Food marketing costs, which increased 11 percent in 1981, rose only 3 percent in 1983. The expected range of increase in 1984 is 4 to 7 percent.